

REMARKS/ ARGUMENTS

Claims 1-54 and new claims 55-56 are pending in the application. Claims 26-41 and 45-52 are withdrawn, reserving the right to pursue these claims in a subsequent application or prosecution. Reconsideration and a withdrawal of all the outstanding rejections and objections are hereby respectfully requested in view of the above amendments and the following remarks.

ALLOWABLE CLAIMS

Applicant is pleased that the Examiner has indicated in the prior office actions that claims 19-22 contain allowable subject matter.

AMENDMENTS TO CLAIM 1

Applicant has amended claim 1 to more particularly articulate the invention. Claim 1 now recites the feature of the contact strips being permanently mounted in the treatment tank. The portion of claim 1 that recites this, reads as follows:

the contact strips being arranged permanently mounted in a treatment tank so that the contact strips receive a work piece that is to be electrolytically treated and the contact strips hold the work piece in the treatment tank during the electrolytic treatment of the work piece, wherein the permanently mounted contact strips are movable within said treatment tank to receive and hold the work piece (1) in a treatment tank (4) and being stationed within the treatment tank (4).

Applicant submits that the claim is fully supported by the specification and no new matter has been introduced. (See Applicant's published spec. at [0087]) Accordingly, the present invention recited in the Applicant's claims, as amended, is distinguishable over the cite art.

Applicant's invention is an improvement over the prior art and should be patentable.

For these reasons, the dependent claims also include this feature and should be patentable. Claims 2-3, 13, 18, 24 and 53 depend from claim 1.

NEW CLAIM 55

Applicant has presented new claim 55. New claim 55 has been added to more particularly recite the feature presented previously regarding the stationed contact strips. Applicant previously pointed out that the contact strips are stationed within the treatment tank. The term "permanently" is recited and the permanently stationed contact strips are displaceable within the treatment tank. This is fully supported by the specification and no new matter has been introduced. New claim 55 reads as follows:

A device for electrolytically treating an at least superficially electrically conducting work piece having substantially opposing side edges, said device comprising current supply devices for the work piece, said current supply devices each comprising contact strips for electrically contacting the work piece at the substantially opposing side edges;

said contact strips being arranged in the treatment tank so as to receive the work piece in the treatment tank, so as to hold the work piece in the treatment tank and so as to be permanently stationed in the treatment tank;
wherein the permanently stationed contact strips are displaceable within said treatment tank.

No new matter has been introduced, and claim 55 is fully supported by the specification (see e.g., the description of Fig. 1; and see Applicant's published spec. at [0087]).

The language of claim 55 patentably defines the invention over the cited references.

New claim 56 also has been presented and contains language along the lines of claim 4, but is written to depend from new claim 55.

Allowance of claims 55 and 56 is respectfully requested.

COMMENTS ON THE CLAIMS

The wording of the claims recites the feature where the contact strips are located in the treatment tank not only during the treatment of the work piece, but also before and afterwards – the contact strips are permanently mounted (claim 1) and receive the work piece in the treatment tank. This latter condition will only be possible if the contact strips are permanently mounted in the treatment tank. Further, each of the examples shown in the Applicant's specification to this effect relate to have contact strips being mounted in the treatment tank and therefore support Applicant's invention where the contact strips are recited to be permanently stationed in the treatment tank (and not temporarily only). Moreover, the specification provides support for the use of

“permanently” as the examples each have the contact strips mounted in the treatment tank.

For these reasons, the present invention is not anticipated by, nor is it obvious in view of the cited references.

Applicant has previously distinguished the present invention over the cited references, and those arguments are supported by the claims as presented herein.

1. The §102 Rejection Over Kumar et al.

Claims 1, 2, 4-10, 12, 53, 54 stand rejection under 35 USC 102(b) as being anticipated by Kumar et al. This rejection is respectfully but strenuously traversed and reconsideration and a withdrawal of the rejection is hereby respectfully requested.

In the final office action, the Examiner considered the subject-matter of independent claim 1 as being anticipated by Kumar et al. because the Examiner contended that Kumar et al. discloses a rack with a frame to which the clamps are mounted which clamps electrically connect the edges of each side of the substrate to a current supply with the jaws 113 and 114 being the contact strips that contact and hold the substrate on opposing side edges and the entire rack with frame and clips is stationed within the treatment tank during processing of the substrate.

The Applicant's present invention is not anticipated by Kumar et al. because, unlike Kumar et al., the feature in the Applicant's invention is to be construed so as to have the contact strips be stationed within the treatment tank not only during the processing of the work piece but also before and afterwards. The Office Action rejection does not address the feature in claim 1 that recites that the contact strips are

“permanently mounted in a treatment tank so that the contact strips receive a work piece that is to be electrolytically treated ...”. In fact, Kumar et al. do not disclose this feature:

The present wording recited in claim 1 clearly states that the contact strips are permanently mounted and hence in the treatment tank at the time the work pieces are delivered to the treatment tank because only then it will be possible that the contact strips receive the work piece in the treatment tank. By contrast, the rack 100 of Kumar et al. having clamps 110-170 which in turn have jaws 113, 114, are designed so as to hold the work piece permanently during the steps of transporting the work piece over a series of treatment tanks, stopping over the designated treatment tank and lowering the work piece into the tank in order to dip same into the treatment liquid in the treatment tank and also finally lifting the rack 100 with the work piece out of the treatment tank once treatment is complete and transporting them further to another treatment tank. Therefore, the jaws 113, 114 of this rack 100 in Kumar et al. are not *“... permanently mounted in a treatment tank so that the contact strips receive a work piece that is to be electrolytically treated and . . . hold the work piece in the treatment tank during the electrolytic treatment of the work piece,”* (reciting language in amended claim 1, above) because they are not located in the treatment tank permanently. In other words, in contrast to Kumar et al., as claimed by the Applicant's invention, the contact strips are in the treatment tank when the work pieces are received.

The Kumar et al. type of racks with clamps and jaws are well-known and almost all conventional treatment plants for PCB's operate using such racks. Therefore, though Kumar et al. do not specifically teach the respective use of the racks 100 as described

herein above, those skilled in the art clearly know that such type of use is the general one. Therefore, those skilled in the art will clearly know that the racks 100 of Kumar et al. are the conventional ones. This will also be evident from the fact that the racks 100 in Fig. 1 of Kumar et al. are shown to be suspended from a support bar 184 which in turn will conventionally be used to be lowered at the respective treatment tank in order to hold the racks 100 being dipped into the treatment tank during the treatment action.

Considering the Applicant's invention, Kumar et al. fails to disclose the invention. In fact, Applicant provides an invention which is distinguishable over the conventional vertical dip tanks where the work pieces are not received by contact strips in the treatment tank as claimed. Such specific device is claimed in claim 53, however, where Applicant recites a vertical dip tank arrangement. Accordingly, the invention recited in claim 53 contains yet additional distinguishing features that are novel with respect to what is disclosed in Kumar et al.

Applicant's presently claimed device is not suggested by Kumar et al. for yet additional reasons. As mentioned above, normally such type of racks are held by carriers and are hung into a treatment tank from above. This causes several problems like high drag-out of the treatment liquid by the racks and consequently drag-in of this treatment liquid into other treatment tanks, additional handling of the racks for loading/unloading and rack stripping, and in consequence smaller plant capacity. Moreover, every station in the treatment line sets individual requirements to the rack, which cannot be satisfactorily met by one single design. Also this causes minor treatment quality at the work piece. It has been found out that such problems are

associated with the work piece moving in the treatment tank during the processing thereof and hence with the indefinite position of the work piece in the tank.

In order to eliminate this problem, according to the Applicant's claimed invention, the contact strips holding the work piece remain in the treatment tank and for this purpose the work piece is received by the contact strips in the treatment tank. In fact, the work piece is supported in the tank by supporting the contact strips which hold the work piece via the contact strips. Kumar et al. fails to teach or disclose the problems that the Applicant's invention addresses, let alone the specific suggestion or disclosure of receiving the work piece by the contact strips in the treatment tank.

Accordingly, Applicant's presently claimed invention should be patentable over Kumar et al.

2. The §103 Rejection Over Kumar et al., Van Gent, Hosten and Geissler

Claims 3, 11, 13-18, 23-25, 42-46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. in combination with Van Gent (NL 1021165 equivalent to US 7534329), Hosten and Geissler et al. This rejection is respectfully but strenuously traversed and reconsideration and a withdrawal of the rejection is respectfully requested.

Applicant previously distinguished the present invention over these cited references.

First, for the same reasons set forth above distinguishing the present invention over Kumar et al., the present invention also is not obvious even when the additional references are attempted to be cited and combined. As the Kumar disclosure does not appear to teach the Applicant's presently claimed invention where the contact strips are

in the tank already when the work pieces are received (and hence are in the tank before and afterwards as explained above), Kumar, therefore, even if combined with additional references still would not teach or suggest the present invention.

Second, furthermore, the present invention is distinguishable over Van Gent. The frame being taught by Van Gent is placed vertically in the bath (col. 1, lines 21-22) which is the conventional use for using such type of frames to hold work pieces which are then electrolytically treated (pre-treatment of aluminum for example, col. 1, lines 14-16) in a treatment tank. So Van Gent does not disclose or suggest the present invention.

In addition, Applicant previously pointed out in a prior response to an office action, that Geissler et al. and Hosten do not disclose the present invention. Applicant's invention relates to contacting the edges (both edges), whereas Hosten provides clamping on one edge region. According to Hosten, the printed circuit boards contacted by means of contact clamps (Kk) comprising upper and lower clamp jaws (Kbo, Kbu) which clamp jaws are forced against one edge region of the printed circuit board by means of closing springs (Sf) that are coil springs arranged on dog pins (Ms). The clamp jaws (Kbo, Kbu) press against the upper or lower sides, respectively, of the printed circuit board in the edge region thereof. Cathodic current is transmitted through the contact clamps by means of contact springs (Kf) on which power pick ups (Sao, Sau) slide, the power pickups being applied to the upper or lower clamp jaws Kbo, Kbu, respectively.

Applicant's invention provides contact strips which remain in the treatment tank (e.g., permanently mounted in the tank), as opposed to Hosten which discloses clamp jaws held by the dog pins (Ms), where the dog pins (Ms) are longitudinally guided by channels (N) in the upper and lower retaining rails (Hso, Hsu). Therefore, upon a

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reading of Hosten, one of ordinary skill in the art would realize that the clamp jaws referred to in Hosten are themselves conveyed through the apparatus on a horizontal transport path as the printed circuit boards are being conveyed through the Hosten device. Applicant's invention is distinguishable over Hosten.

Hosten discloses an apparatus for horizontally conveying the printed circuit boards therethrough and for treating the printed circuit boards during their passage through the apparatus. One of ordinary skill in the art therefore would not have looked to modify the Hosten apparatus to provide the contact strips of Applicant's present invention that are permanently mounted in the treatment tank. Hosten provides clamp jaws that move through the treatment tank.

Applicant's invention also is distinguishable over Geissler, for reasons previously pointed out. The Geissler contacting clips do not anticipate or teach or suggest the Applicant's present invention. The contacting clips referred to in the Office Action as being disclosed by Geissler do not disclose Applicant's contact strips for contacting the printed circuit boards at opposite side edges. This feature is claimed by Applicant. Applicant's claim 1 recites the features which distinguish the present invention over Geissler et al.:

Claim 1. (Currently amended) A device for electrolytically treating an at least superficially electrically conducting work piece (1) having substantially opposing side edges (24)... contact strips (5) for electrically *contacting the work piece (1) at the substantially opposing side edges (24)*;

In addition, Geissler further fails to disclose or suggest the feature of Applicant's claim 1 which recites that the contact strips are permanently mounted in the treatment

tank. Contrary to the Applicant's present invention as claimed, the contacting clips of Geissler et al. are conveyed through the Geissler et al. apparatus.

The electrical connection between the clips 11, which travel jointly with the item to be treated 3, and the bath current source is provided via sliding contacts, which are not illustrated in the Figures. Also, the linearly driven *contacting clips 11 assume the function of conveyance for the printed circuit boards or conductor foils*.

(Geissler et al., col. 6, lines 53-58)

Therefore, even if the Office Action attempts to equate the contacting clips of Geissler to the Applicant's contact strips (which they are not), the rejection must fail for yet additional reasons.

Similar to the distinguishing features of the present invention and the reasons supporting the patentability of Applicant's invention over Hosten, the present invention should also be patentable over Geissler et al. Geissler et al. discloses an apparatus for horizontally conveying the printed circuit boards therethrough and treating the same during the passage of the boards through the apparatus. Accordingly, one of ordinary skill in the art would not have been led to modify the Geissler et al. apparatus to have its contact strips being designed and arranged to remain stationed within the treatment tank. If this were to be done, the apparatus of Geissler et al. would no longer be a conveyorized apparatus, that is, if the Applicant's feature of having contact strips (what the Office Action considers to be the Geissler contacting clips) permanently mounted in the treatment tank as opposed to being conveyorized and moved along with the printed circuit boards. Therefore, the Geissler et al. apparatus would no longer be a conveyorized apparatus but rather would be something else. Accordingly, modifying Geissler et al. would be contrary to what the disclosure, purpose and function of Geissler

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recite. Accordingly, the proposed modification to Geissler et al. would actually teach away from Applicant's present invention.

Applicant submits that the amendment and remarks provide distinctions over the cited art.

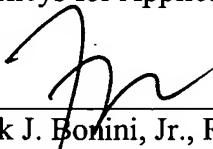
If further matters remain, in particular, prior to issuing a first office action, Applicant respectfully requests a telephone interview or conference to discuss the application with the Examiner.

For the reasons set forth herein, Applicant hereby respectfully requests reconsideration and a withdrawal of all outstanding objections and rejections in the case.

If an extension of time is needed the Commissioner is authorized to consider this a request for the appropriate petition for extension of time.

The Commissioner is authorized to charge any additional fees which may be required to the Patent Office Deposit Account No. 05-0208.

Respectfully submitted,
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